

## CLAIMS:

1. A radiation detector comprising

- a plurality of detector units
- x-ray absorption members which in a lateral direction separate at least a part of the respective detector units
- 5 - an individual detector unit including
  - a sensor element and read-out circuitry, wherein
  - the x-ray absorption members have a wider portion and a narrower portion
  - the read-out circuitry being accommodated at the narrower portion of the x-ray absorption member.

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2. A radiation detector as claimed in Claim 1, wherein an individual detector unit comprises several sensor elements being stacked in a transverse direction.

15 3. A radiation detector as claimed in Claim 1, wherein the detector units are substantially sensitive for x-radiation.

4. A radiation detector as claimed in Claim 1, wherein the detector units are substantially sensitive for positron radiation.

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5. A radiation detector as claimed in Claim 1, having a first group of detector units which are substantially sensitive for x-radiation and a second group of detector units which are substantially sensitive for positron radiation.